

FIG. 1

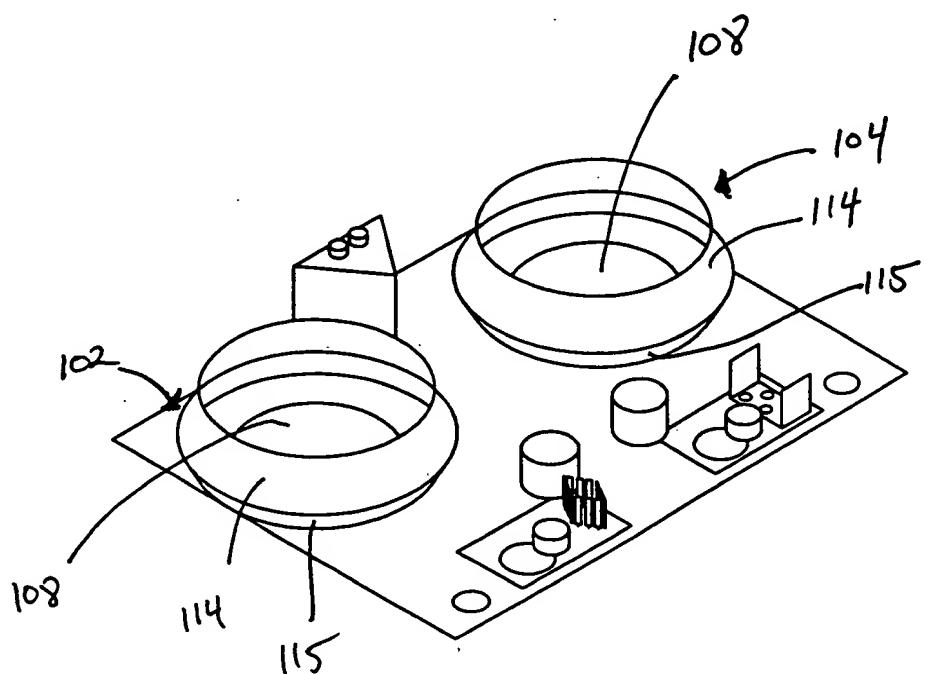


FIG. 2

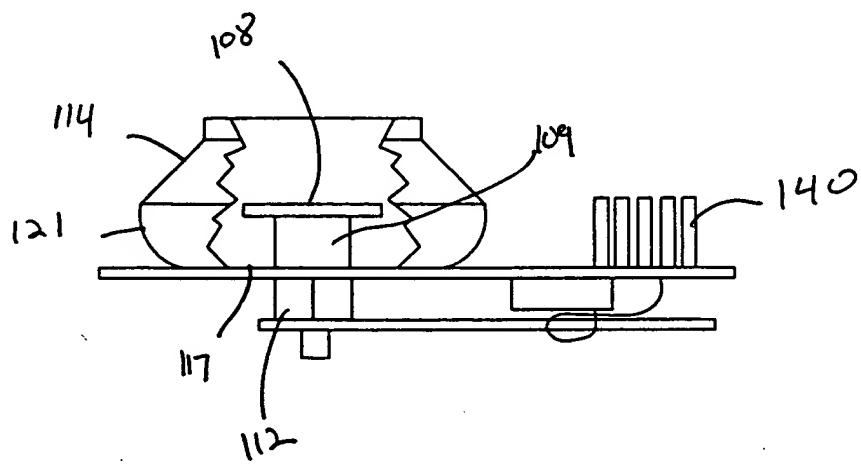
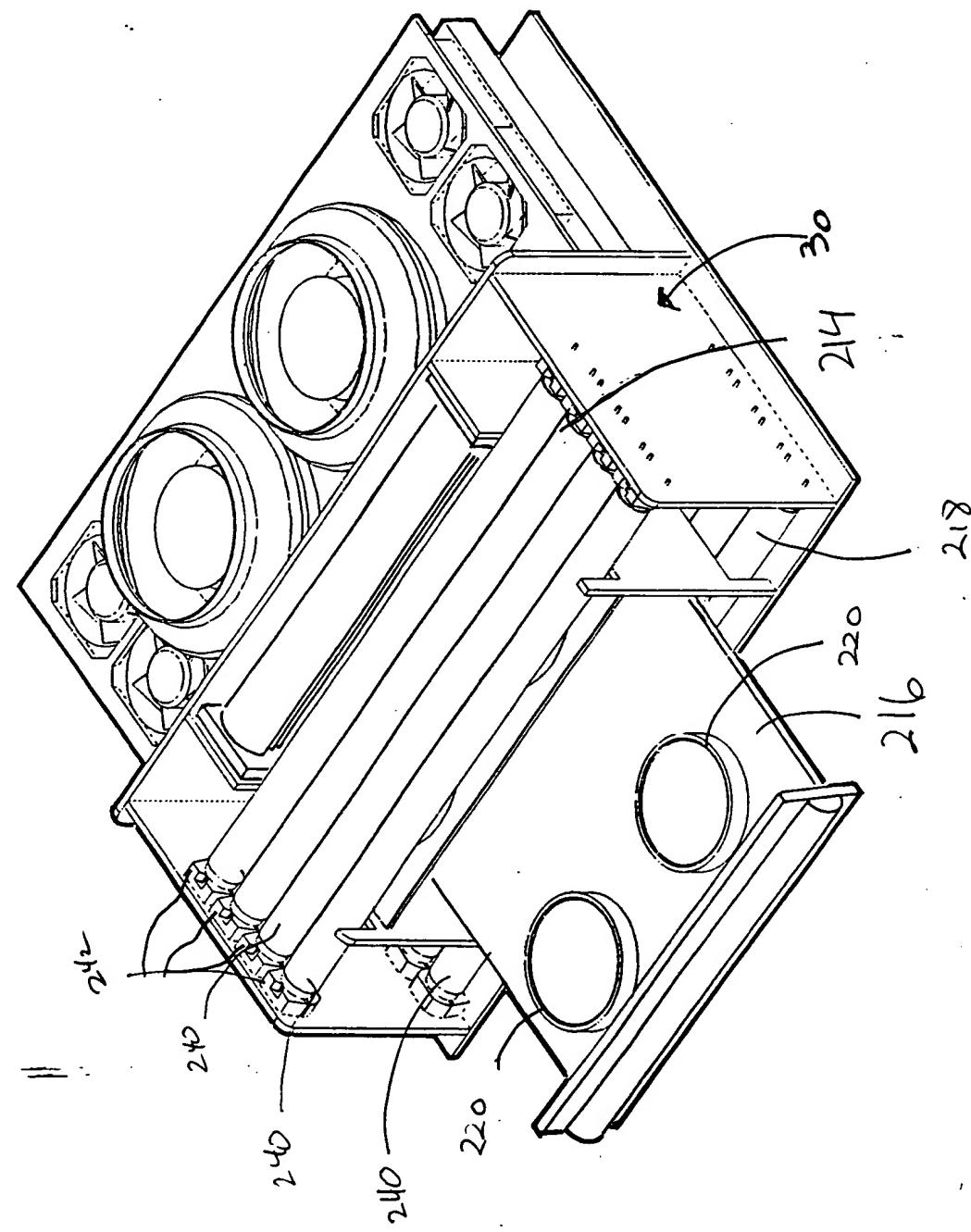


FIG. 3

FIG. 4



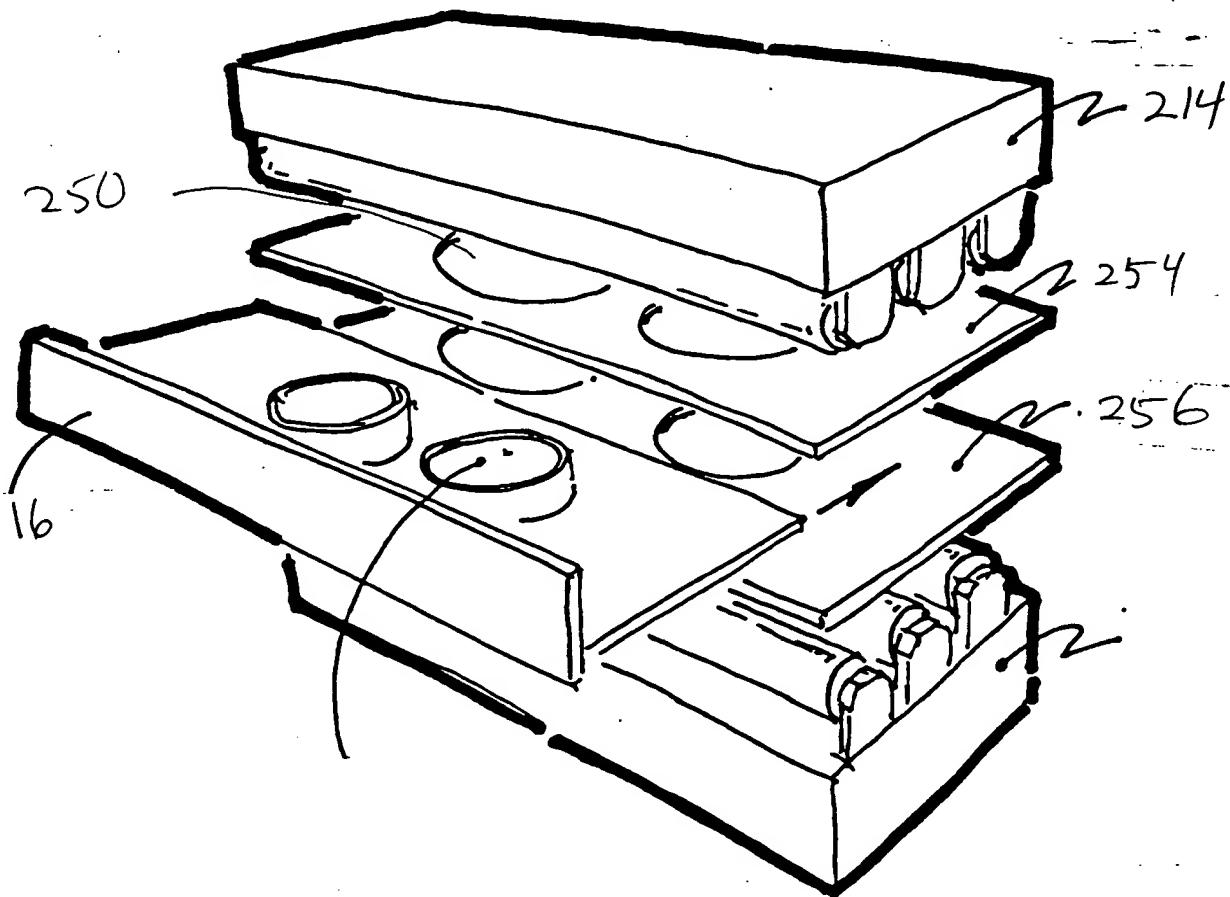


FIG. 5

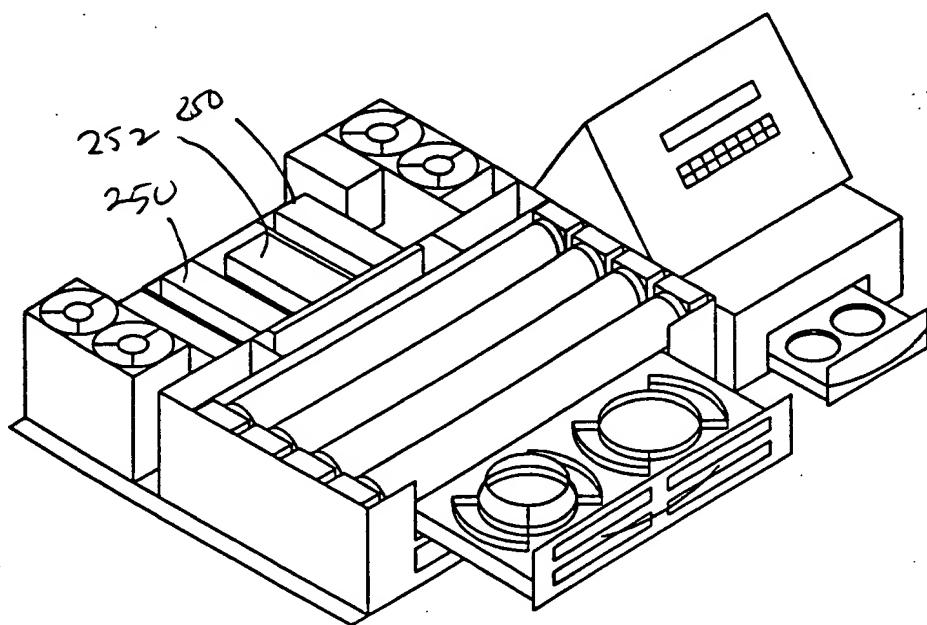
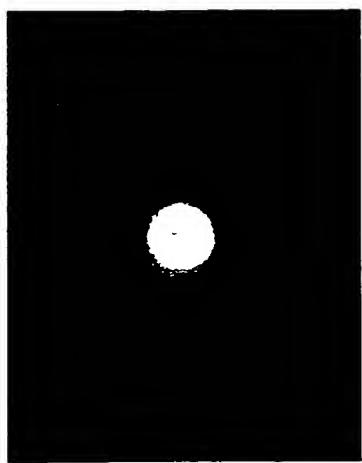
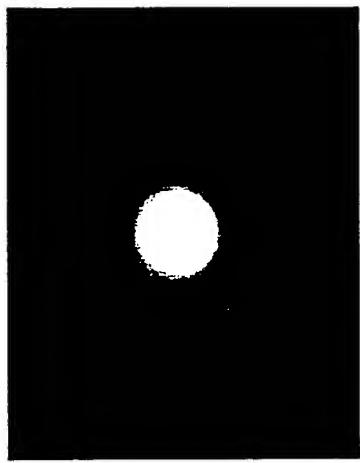


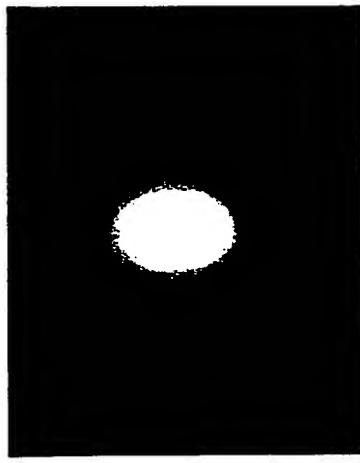
FIG. 6



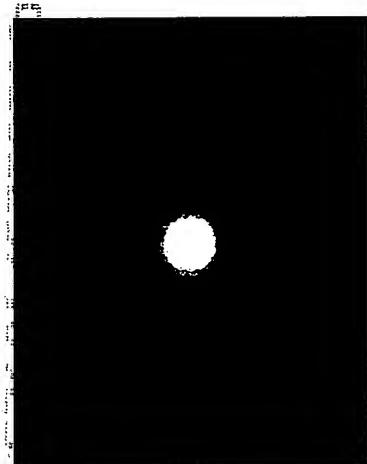
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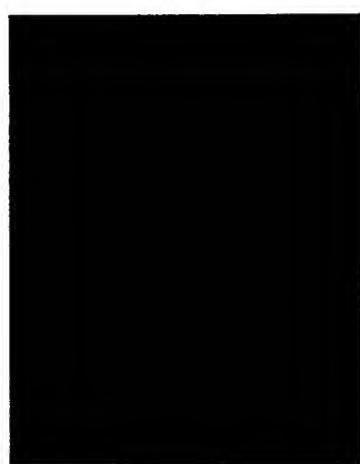
B



C



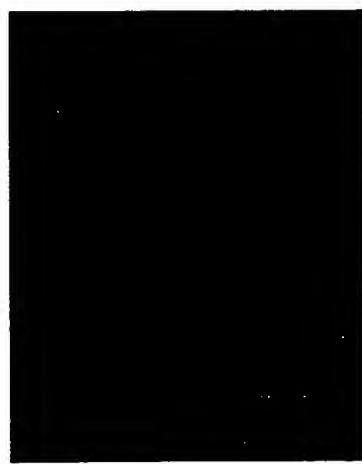
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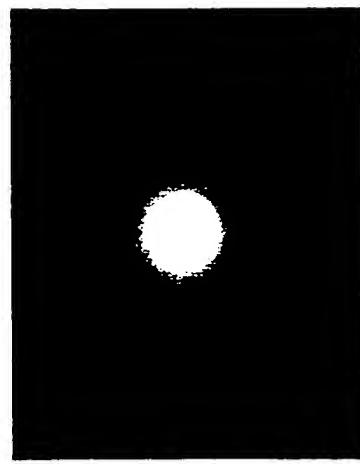
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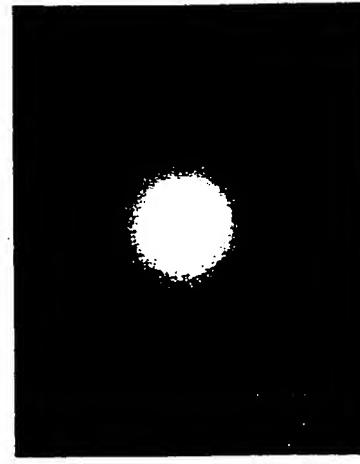
F



G



H



I

FIG. 7

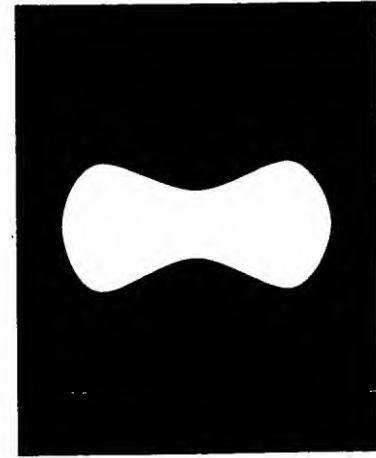
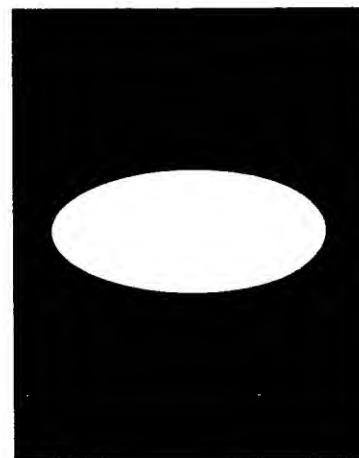
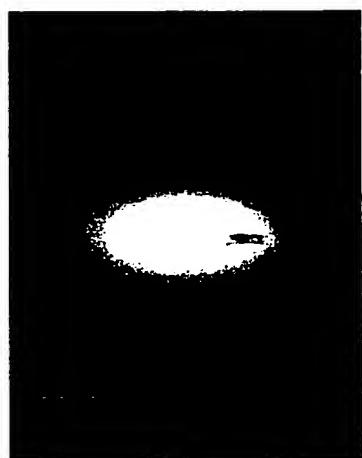
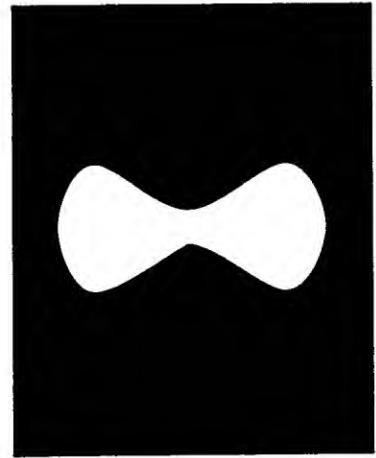
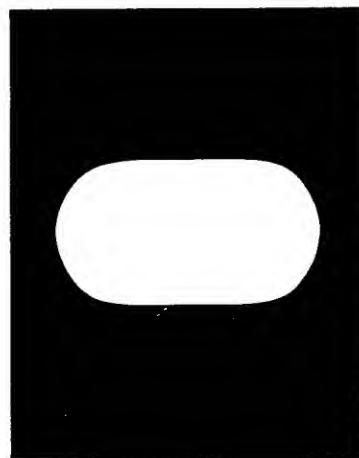
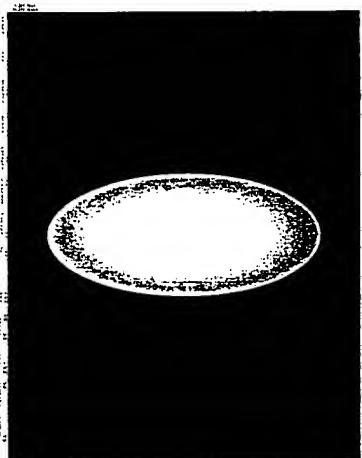
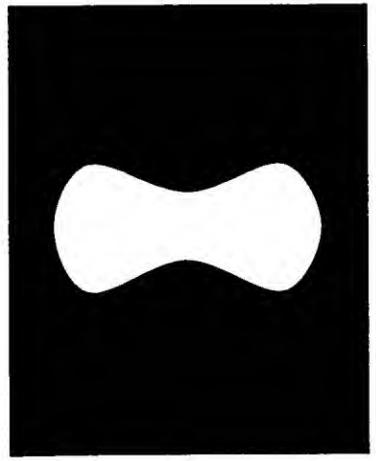
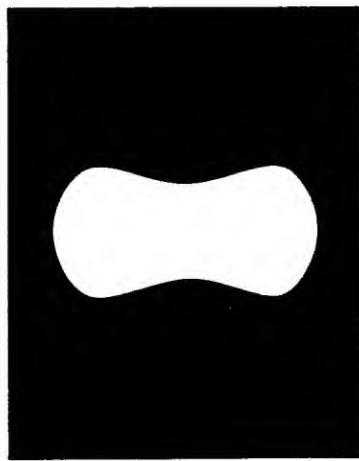
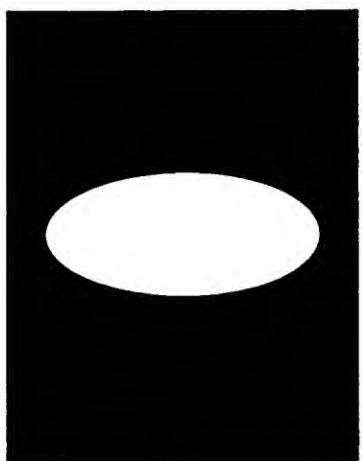
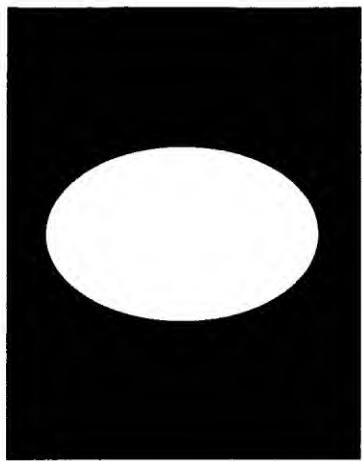
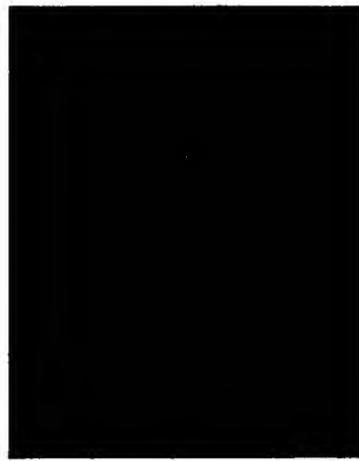


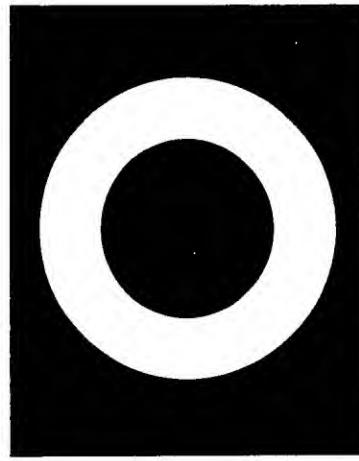
FIG. 8



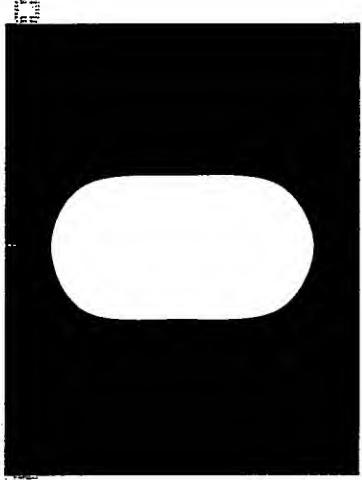
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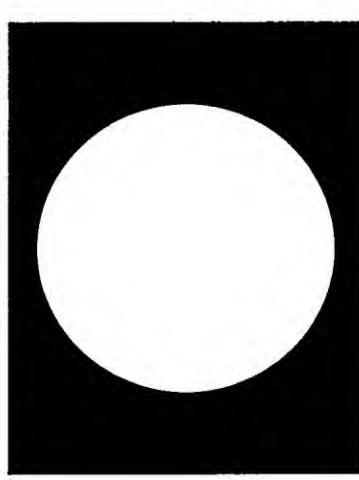
B



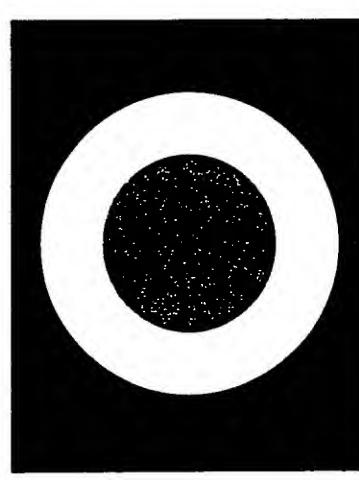
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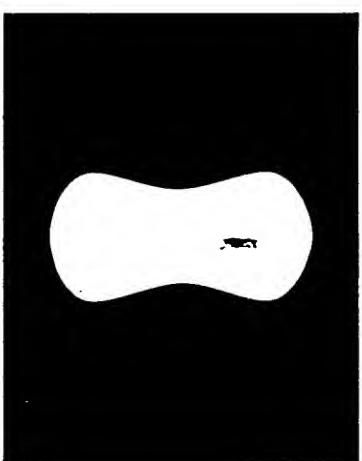
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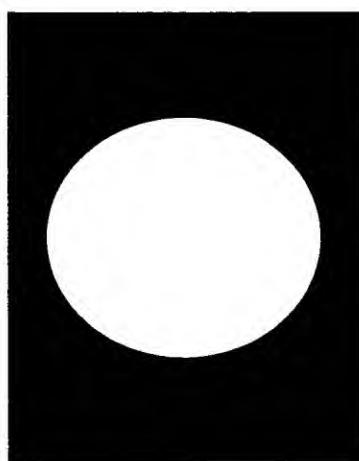
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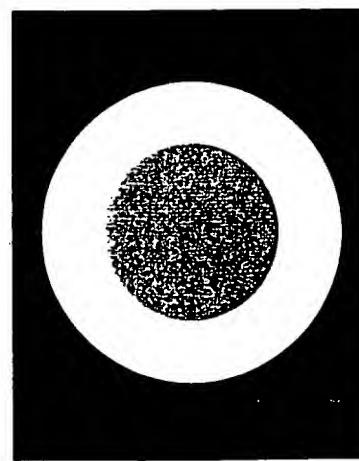
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G

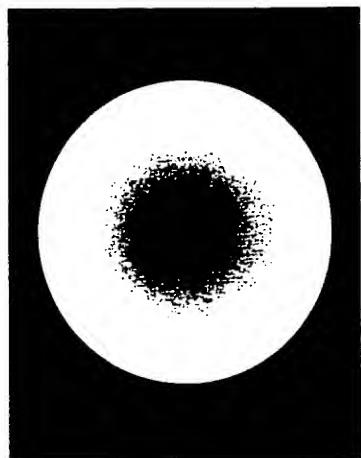


H

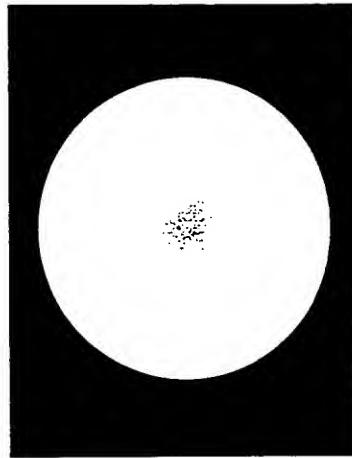


I

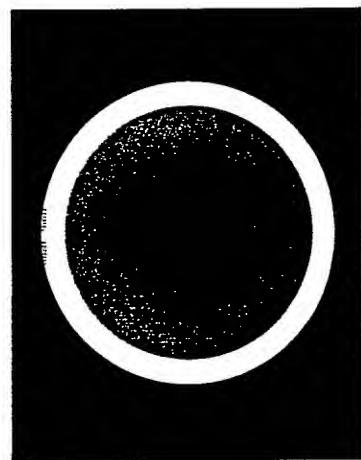
FIG. 9



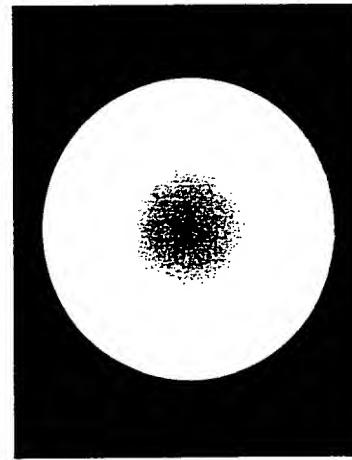
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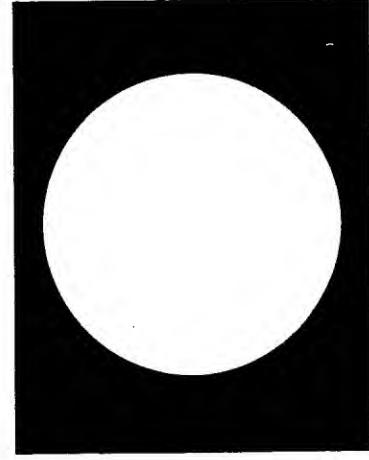
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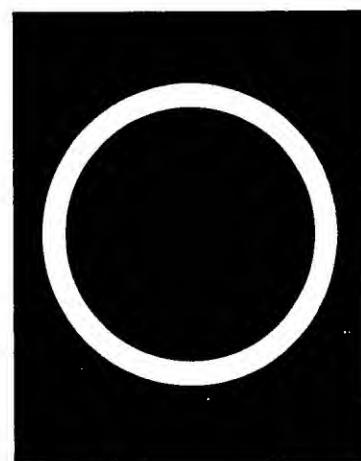
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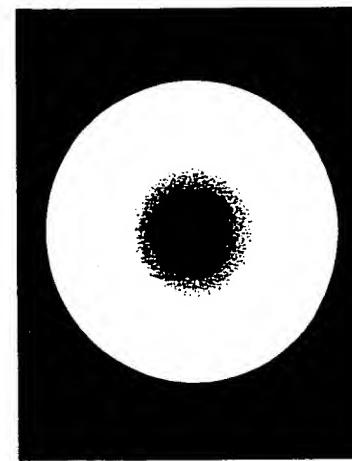
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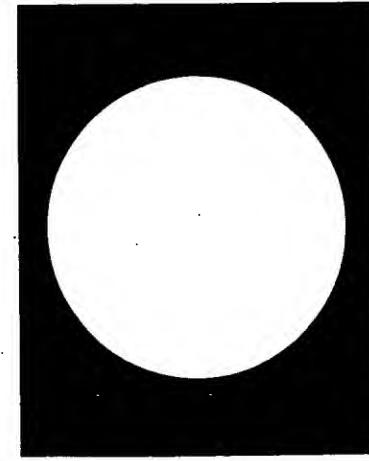
F



G



H



I

FIG. 10

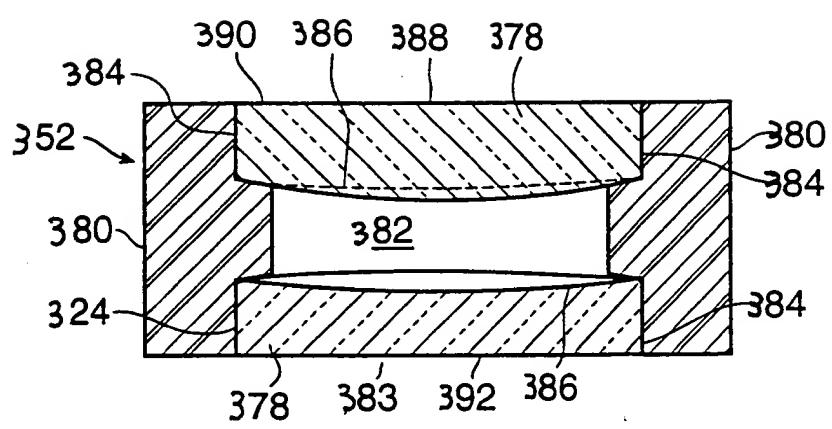


FIG. 11

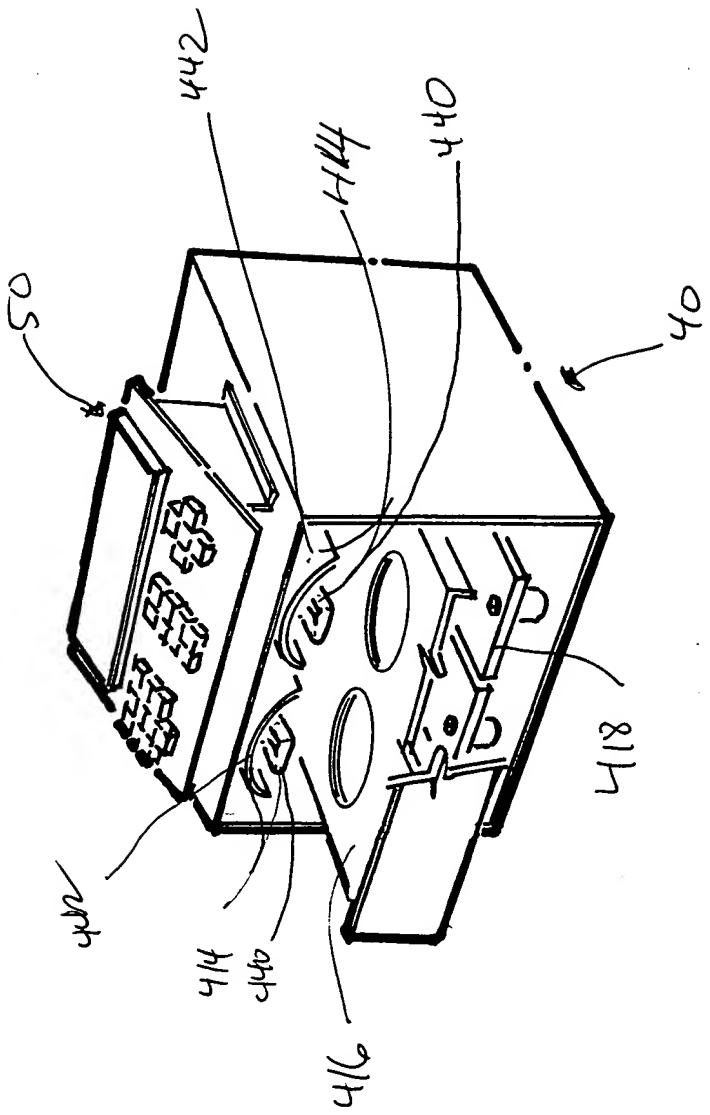


FIG. 12

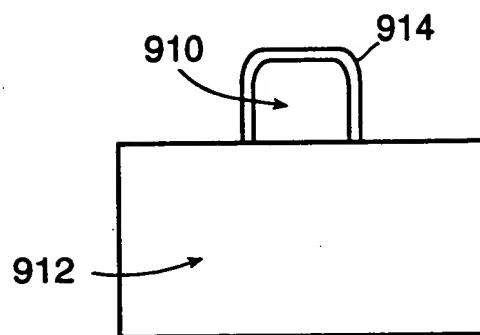


FIG. 13

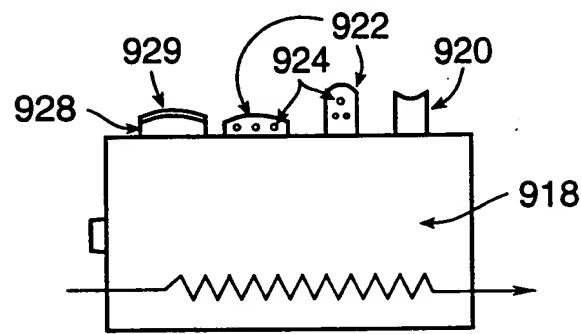


FIG. 14

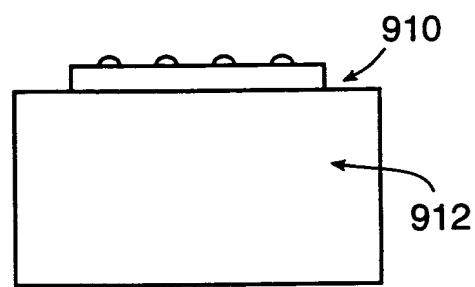


FIG. 15

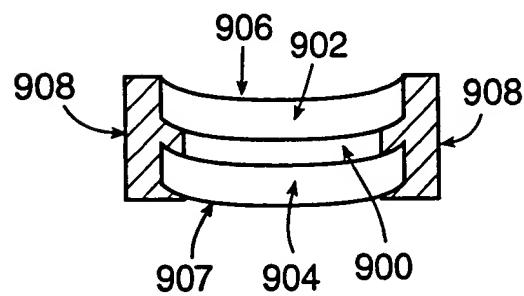


FIG. 16

Fig. 17

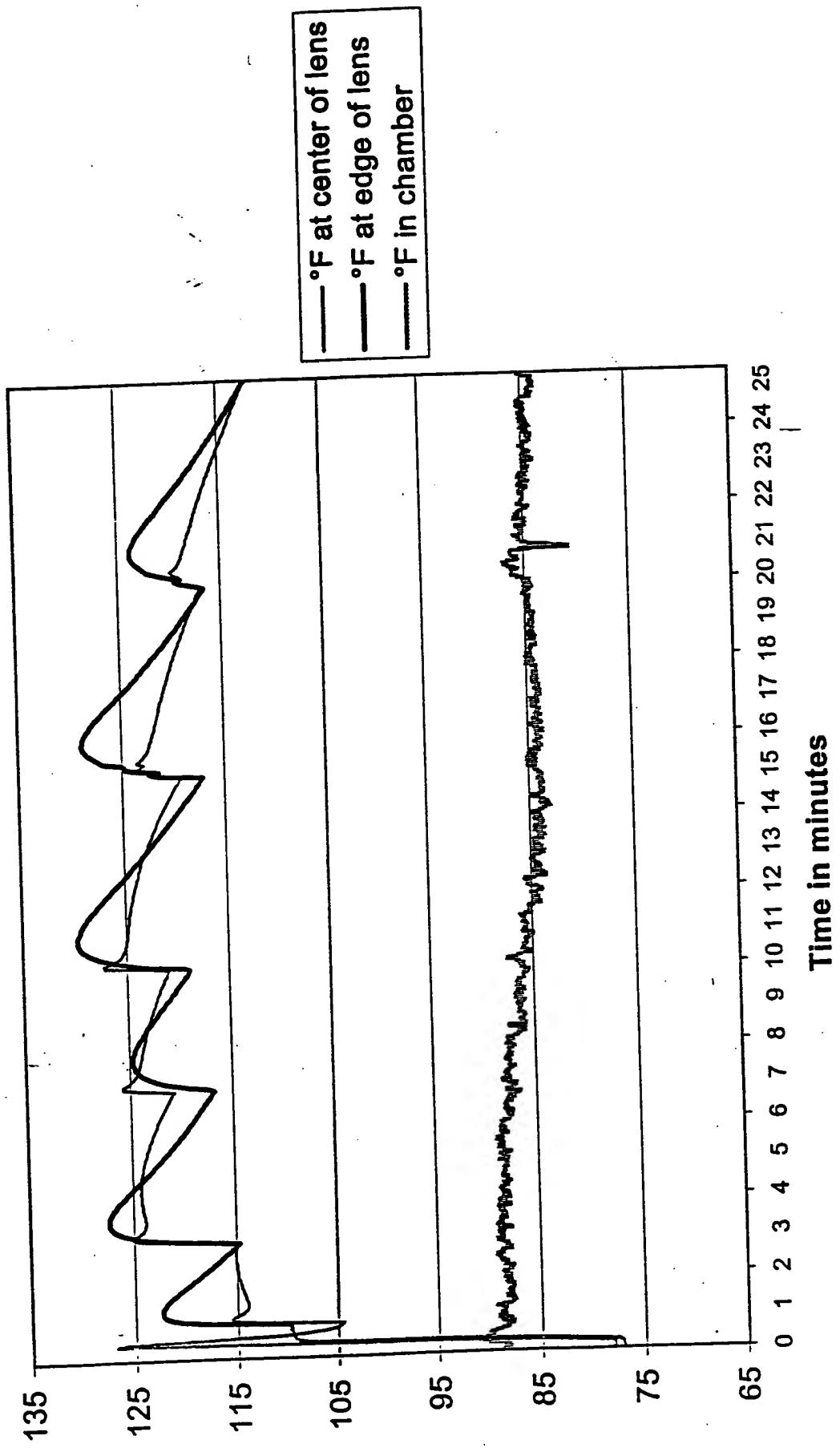
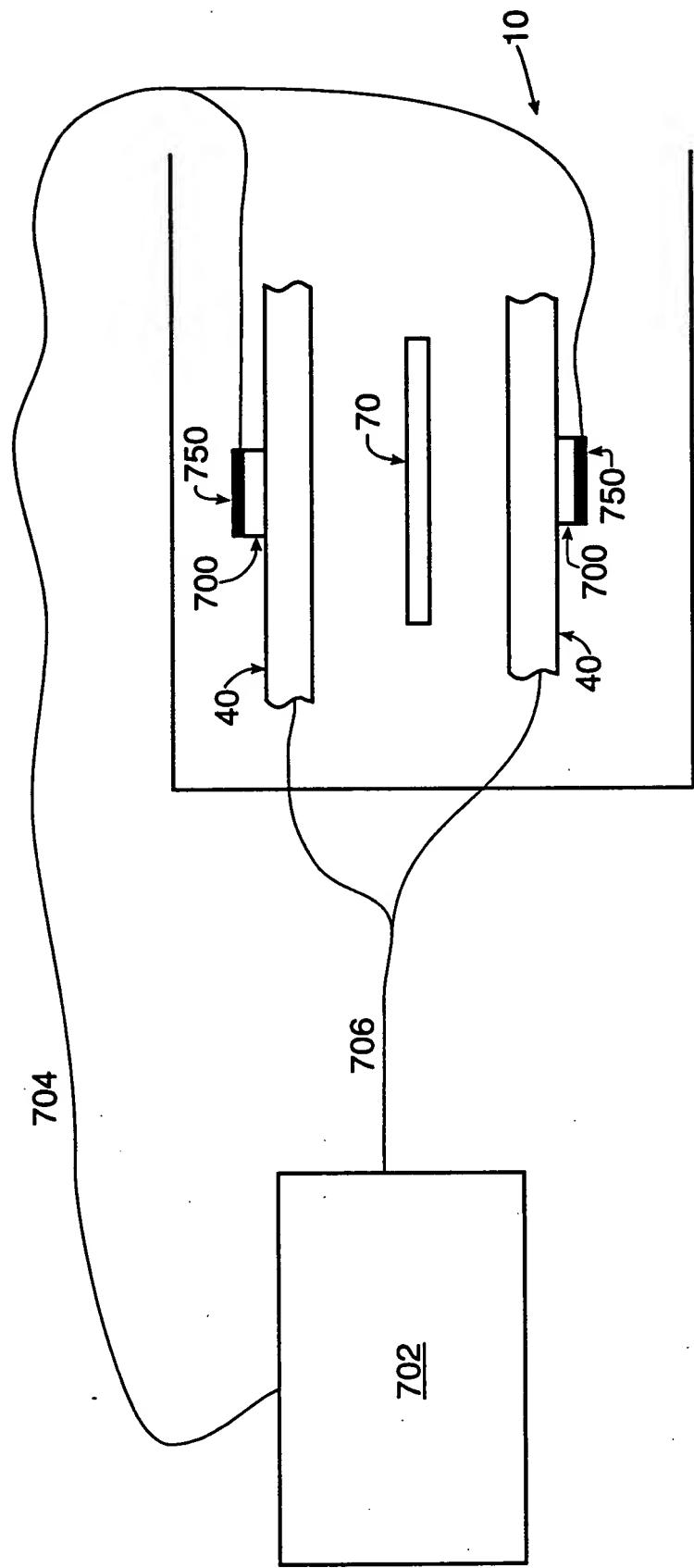


FIG. 18



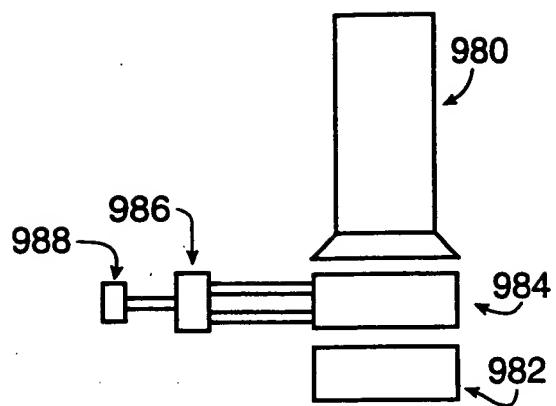


FIG. 19

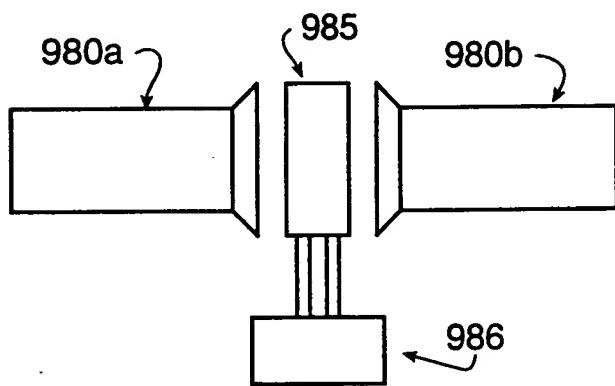


FIG. 20

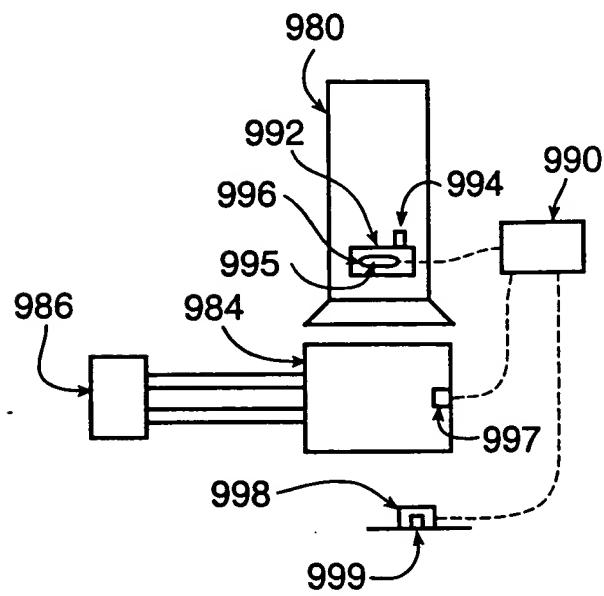


FIG. 21

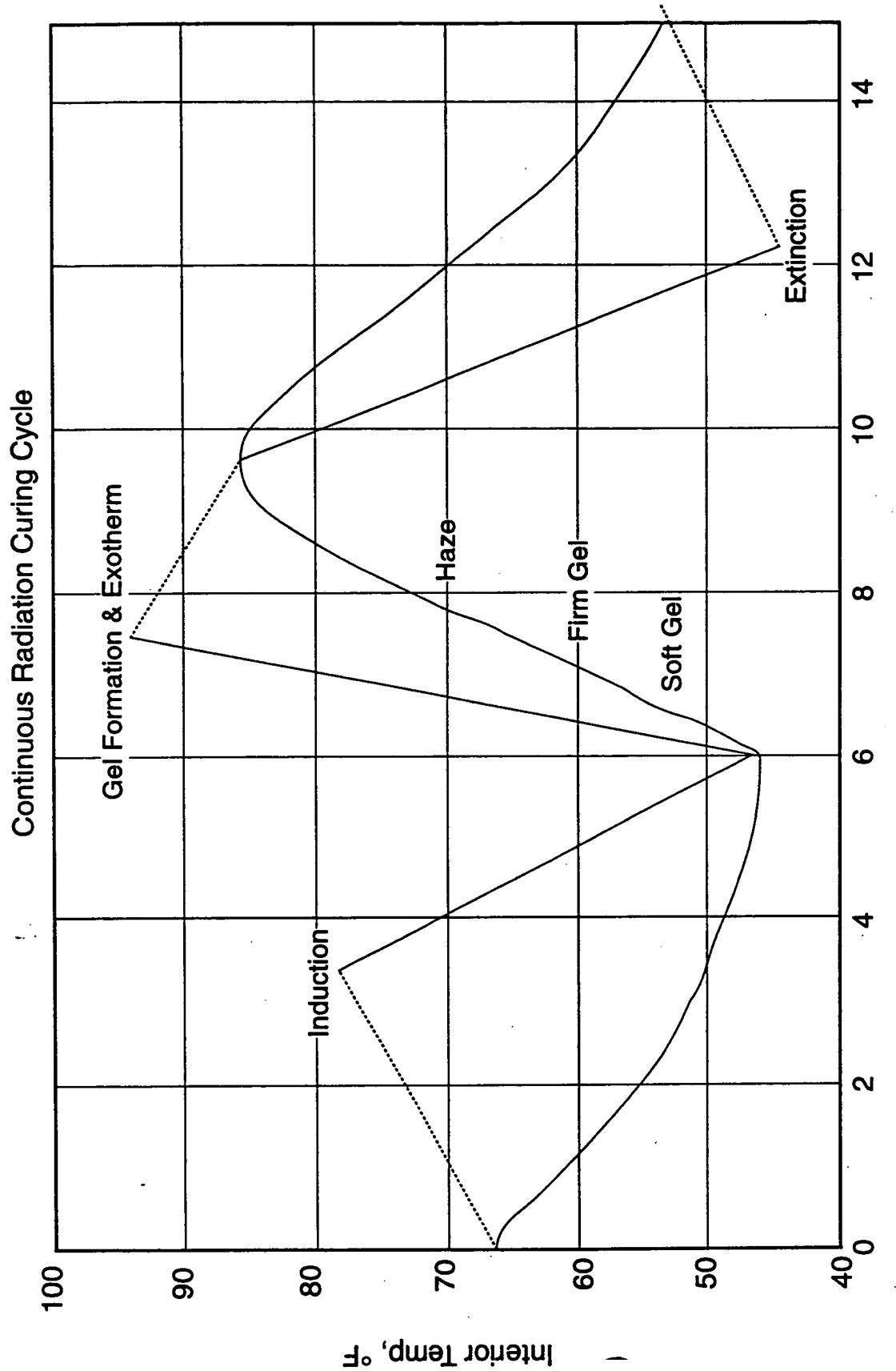


FIG. 22

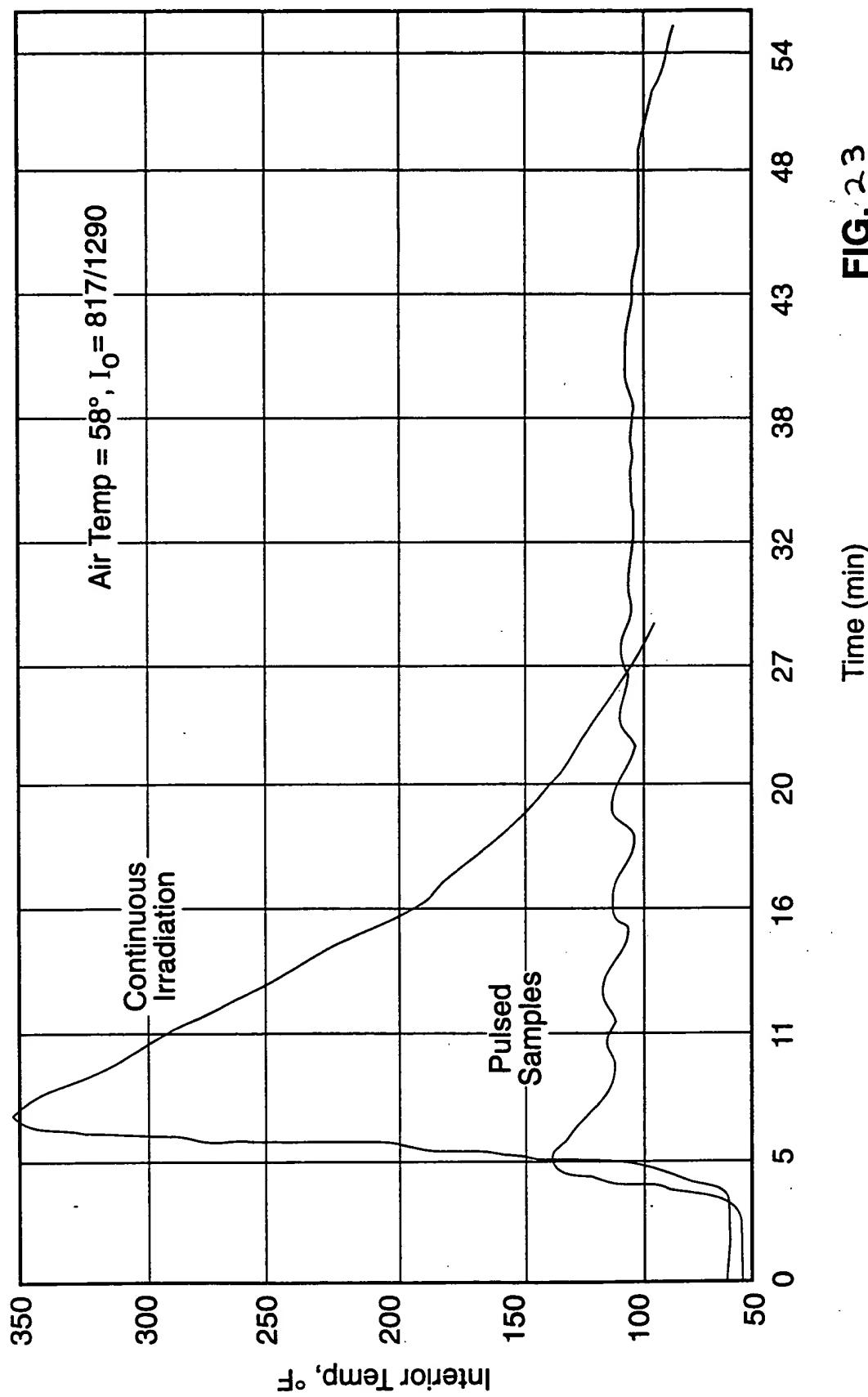


FIG. 23

FIG. 24

Interaction of Pulsed Method Variables

The effect that this variable will tend to have:
MASS OF SAMPLE

On this cycle
variable in:

**OPTIMAL
INITIAL
EXPOSURE
TIME**

LIGHT INTENSITY

IDENTITY OF MONOMER

	RATE OF COOLING	
MASS OF SAMPLE	As light intensity increases, initial exposure time may tend to decrease. The light intensity level may be controlled for a fixed curing cycle and initial exposure time. It is believed, however, that changes in light intensities may have little impact above a certain light "saturation" point for the sample.	Differences in inhibitor & initiator levels between batches of otherwise identical monomers may significantly affect induction periods. Various radiation curable compounds may also vary widely in their preferred initial exposure times due to inherent differences in their reactivity.
TOTAL CYCLE TIME	Increased sample mass may require increased total cycle time to dissipate the additional heat generated.	Increased rates of heat removal may allow for a reduction in the time between pulses and thus total cycle time.
TIMING BETWEEN PULSES	For a given light intensity level, the duration of the pulses may be adjusted to create the desired amount of reaction. The timing between the pulses may also be so adjusted.	The duration of the pulses may be adjusted to create the desired amount of reaction and heat generation for the particular lens forming material being cured. Adjusting the cooling period between pulses may also be beneficial.

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Interaction of Pulsed Method Variables (continued)

The effect that this variable will tend to have:

MASS OF SAMPLE	LIGHT INTENSITY	RATE OF COOLING	IDENTITY OF MONOMER
In this cycle variable in: TOTAL EXPOSURE TIME	Increased sample mass tends to require both increased initial exposure time and a greater number of pulse/cooling cycles.	Increased light intensity will tend to result in decreased total exposure time and decreased light intensity will tend to require increased exposure time. It is believed, however, that changes in light intensities may have little impact above a certain light "saturation" point for the sample.	A significant effect that monomer identity may have on total cycle time may be contributed by differences in the preferred initial exposure period. Various lens forming materials may also require longer/shorter duration pulses depending upon their reactivity.
DURATION OF PULSES	The length of the pulses during each phase of the curing cycle may be adjusted for different mass samples. The time between pulses may be increased /decreased according to mass.	The duration of the pulses may be varied in inverse proportion with the light intensity selected. It is believed, however that changes in light intensities may have little impact above a certain light "saturation" point for the sample.	Various lens forming materials require different pulse duration depending upon their reactivity. For a selected material, slight differences in initiator & inhibitor levels will not tend to affect pulse duration. A pulse will tend to generate a certain amount of heat to be dissipated. Since the pulse duration tends to be small relative to the time between pulses when the heat is being removed, changes in the rate of heat removal should not significantly affect the ideal pulse duration.

FIG. 24
(continued)

FIG. 25

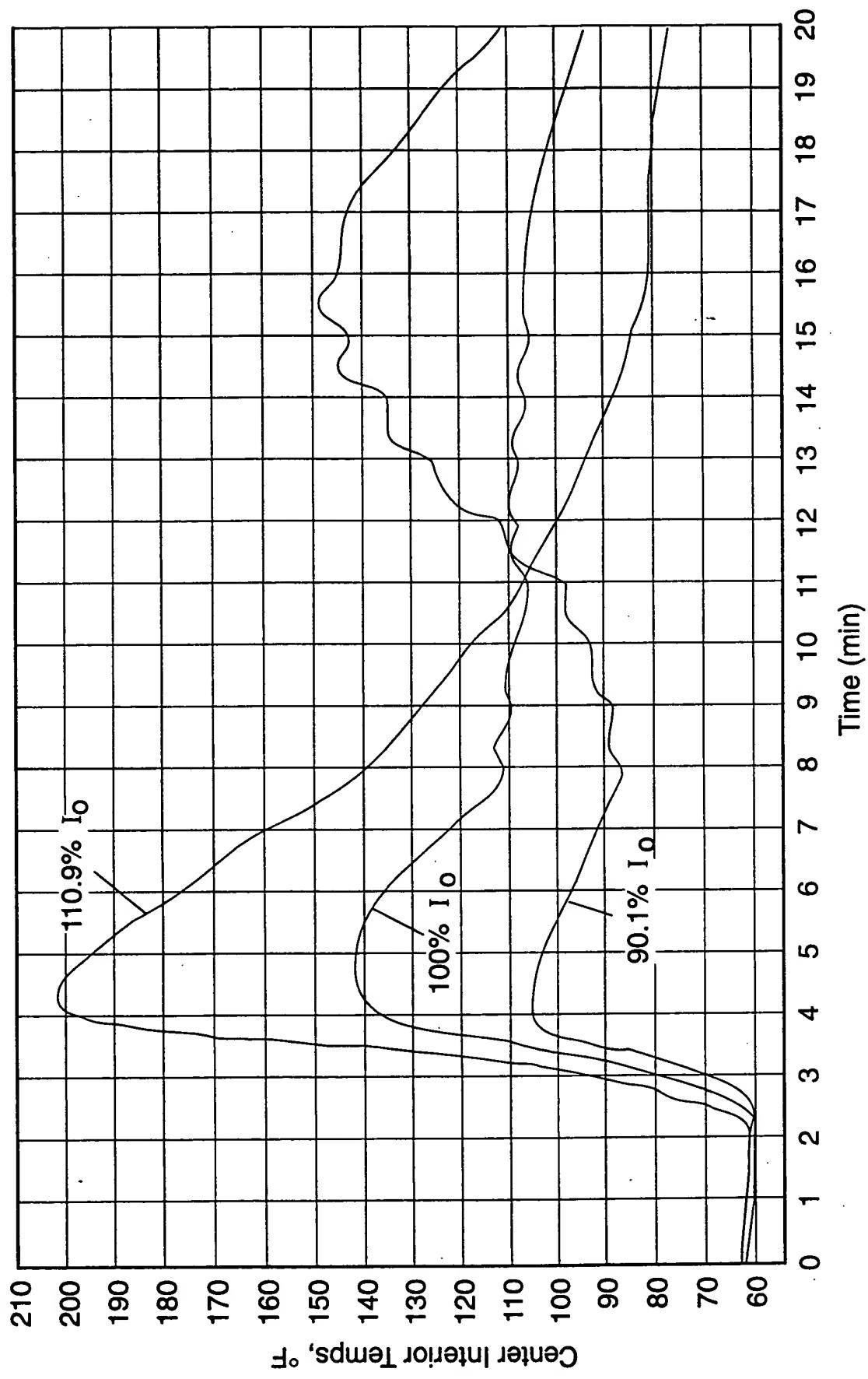


FIG. 26

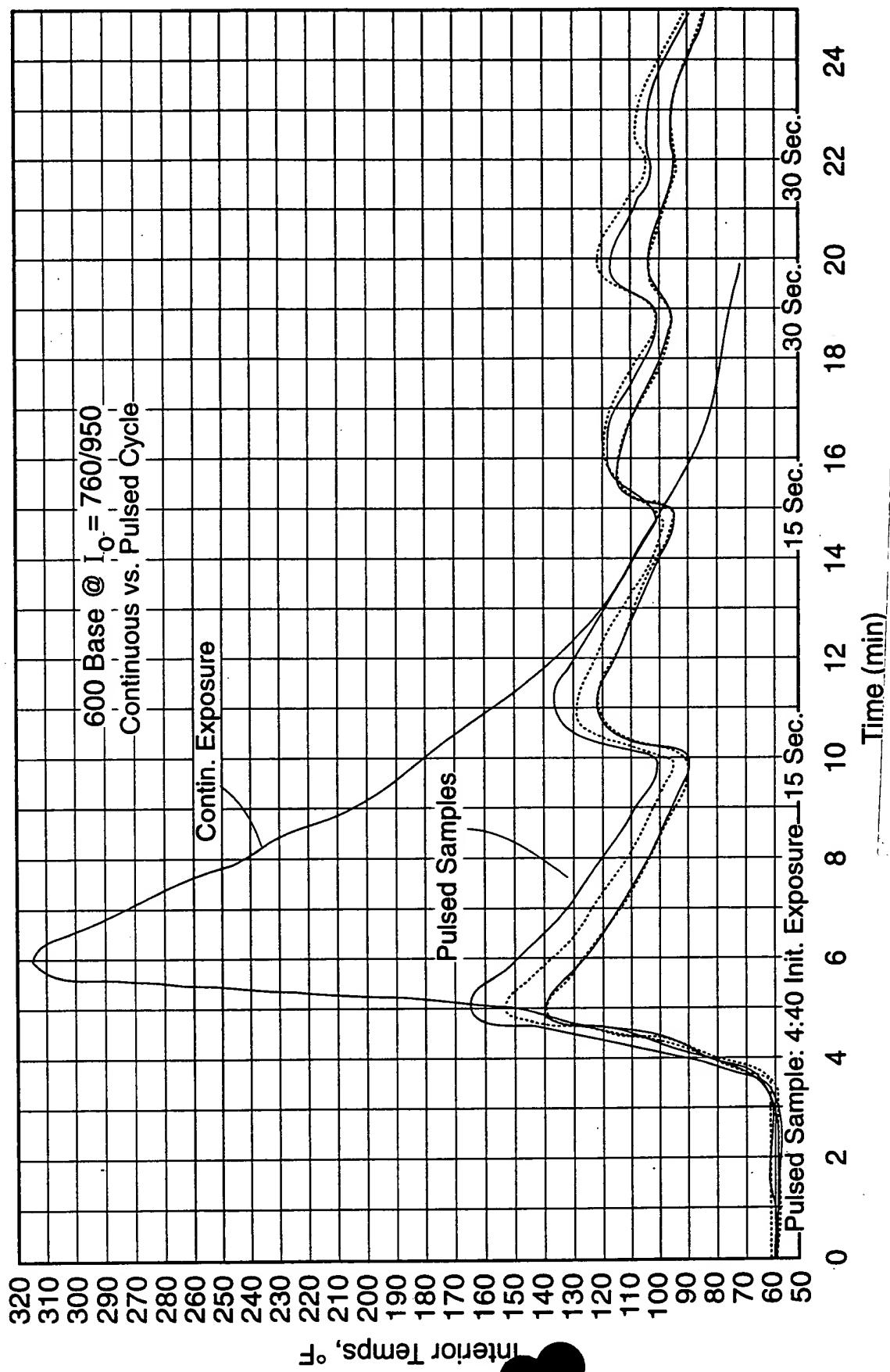


FIG. 27

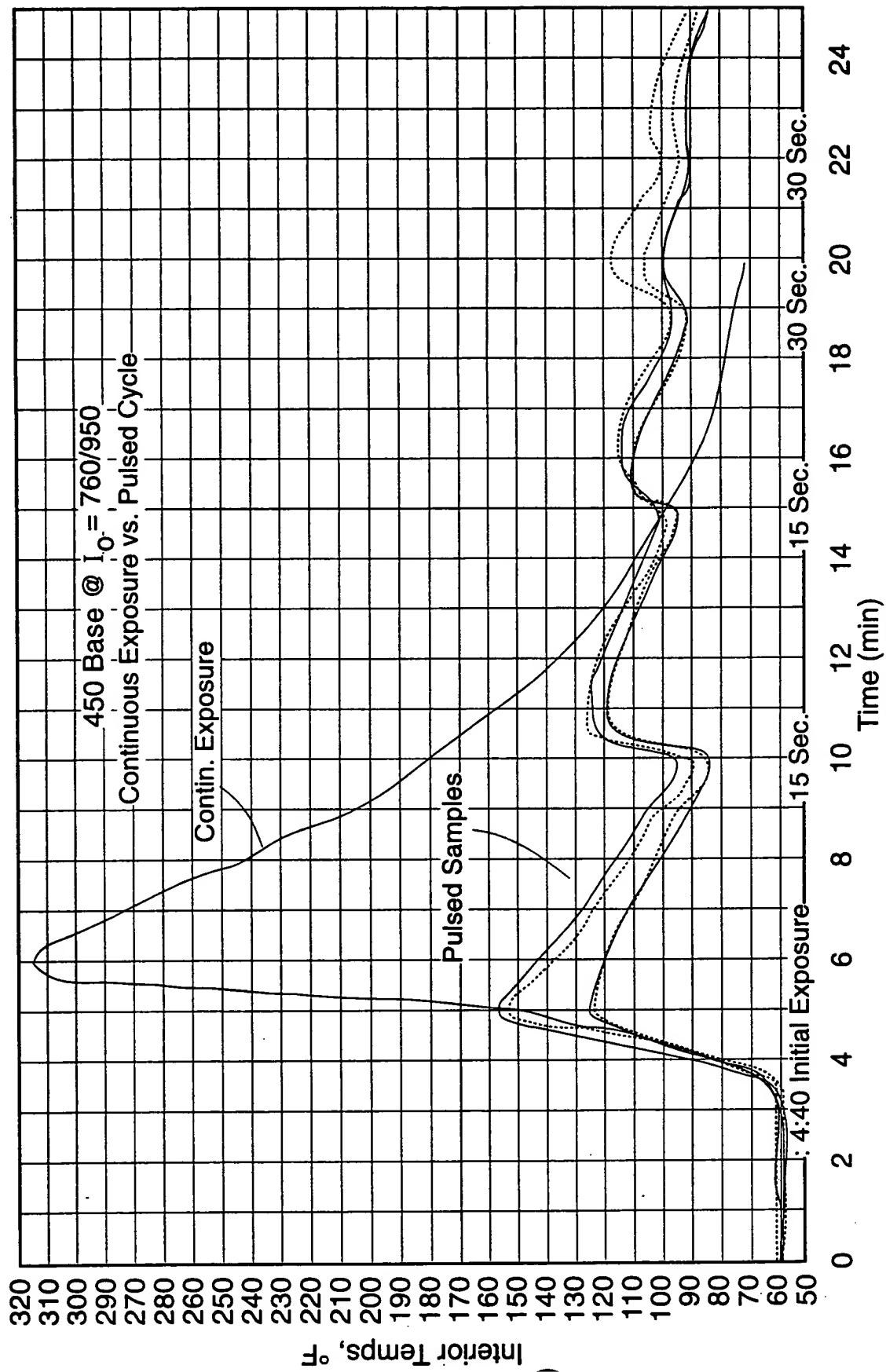
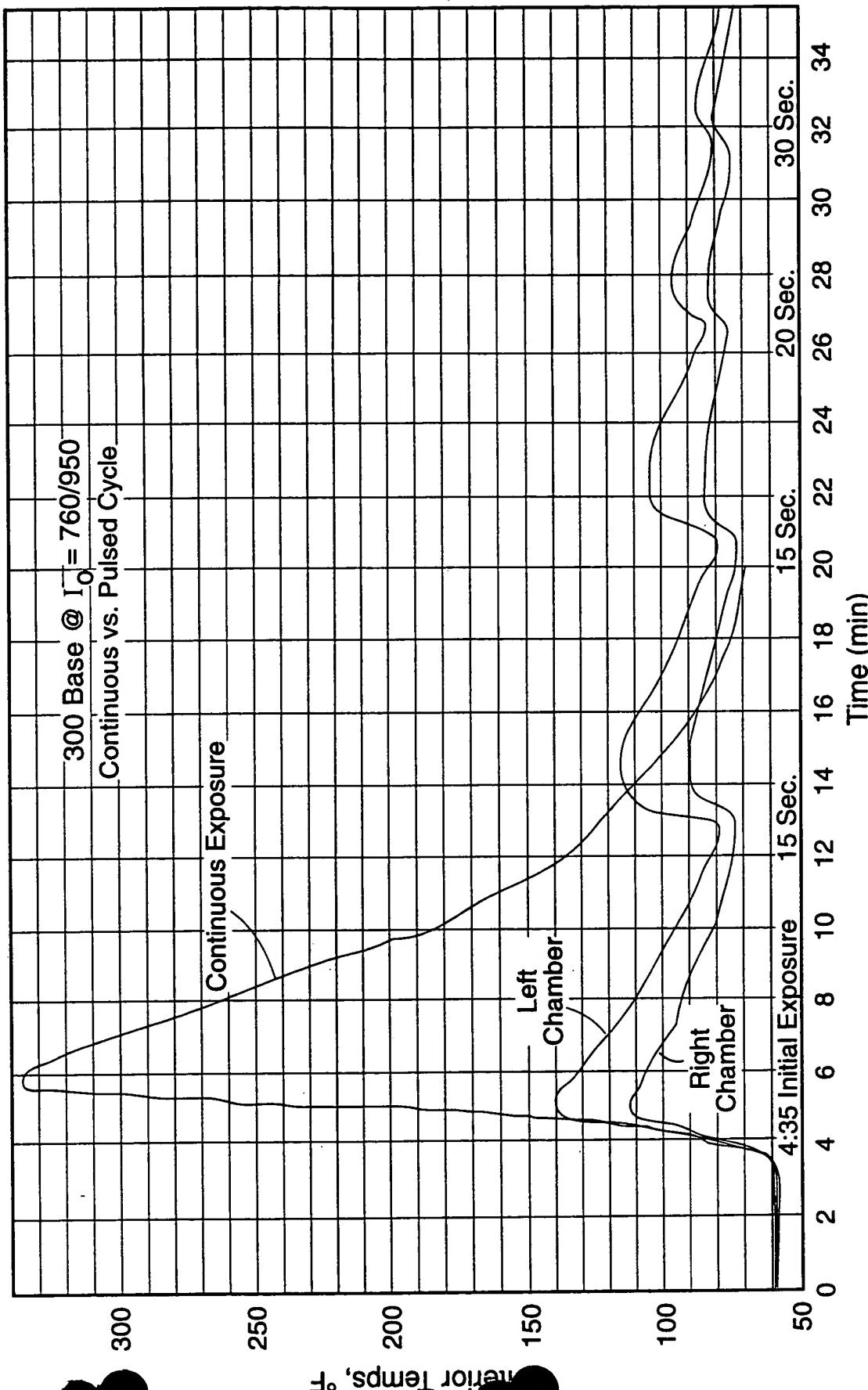


FIG. 28



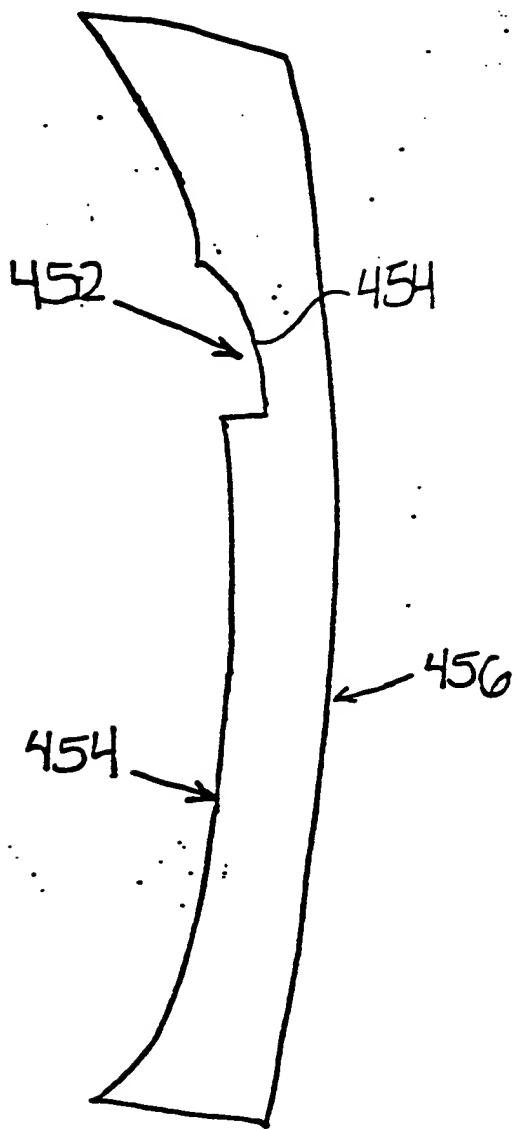


FIG. 29

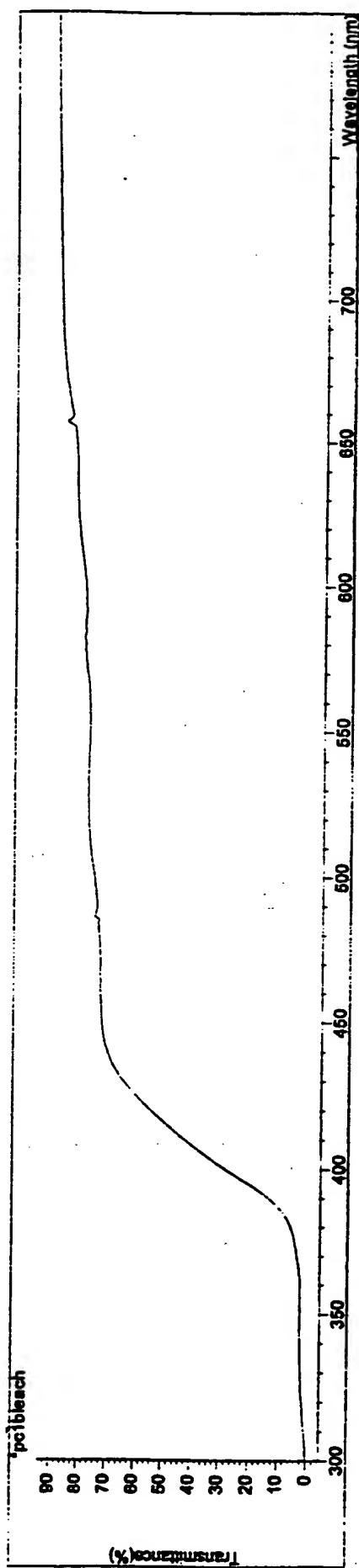


FIG. 30

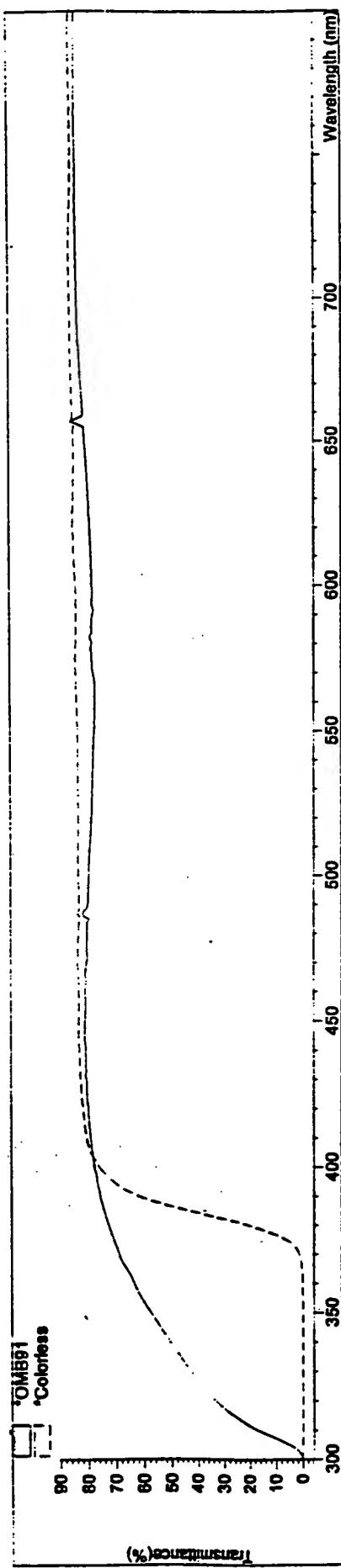


FIG. 31

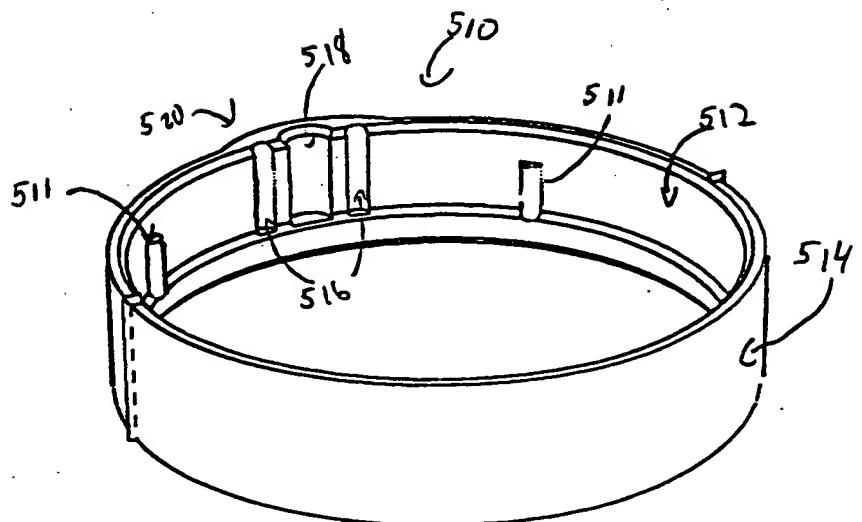


Fig. 32

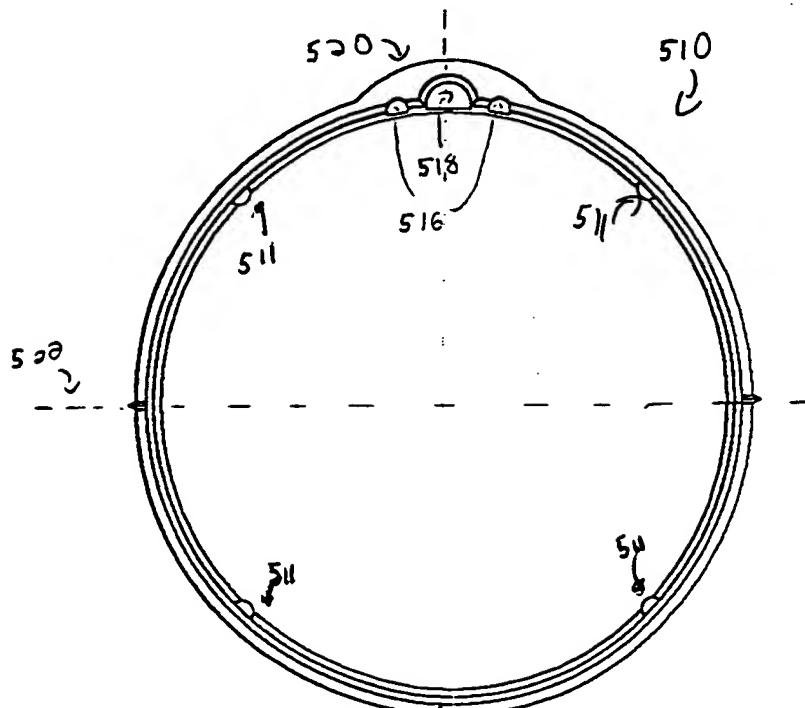


Fig. 33

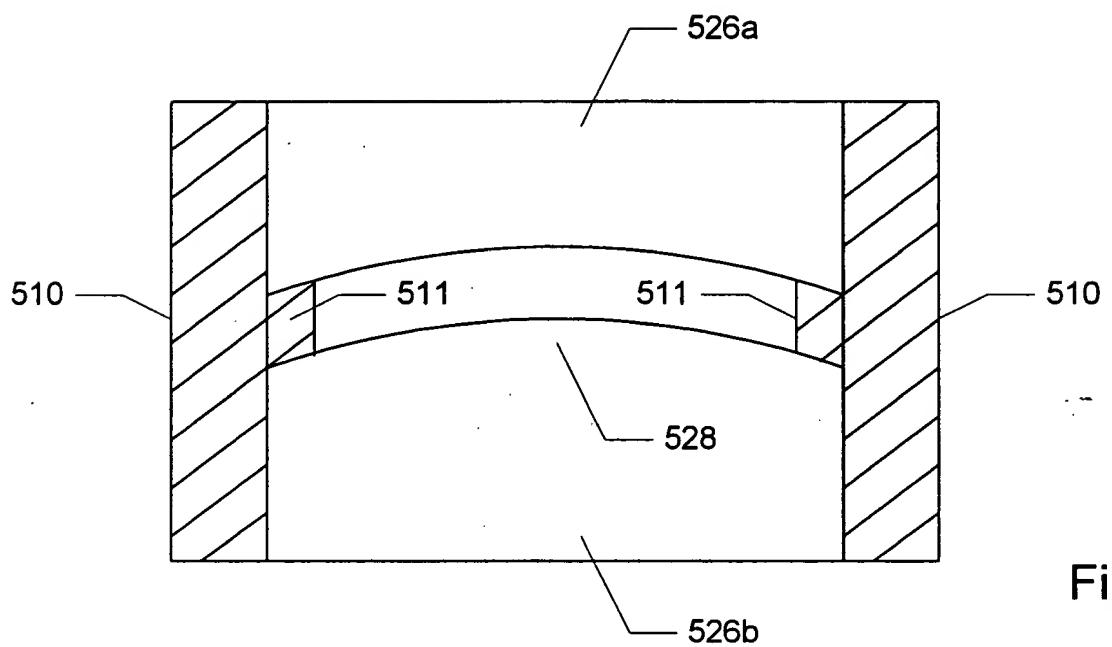


Fig. 34

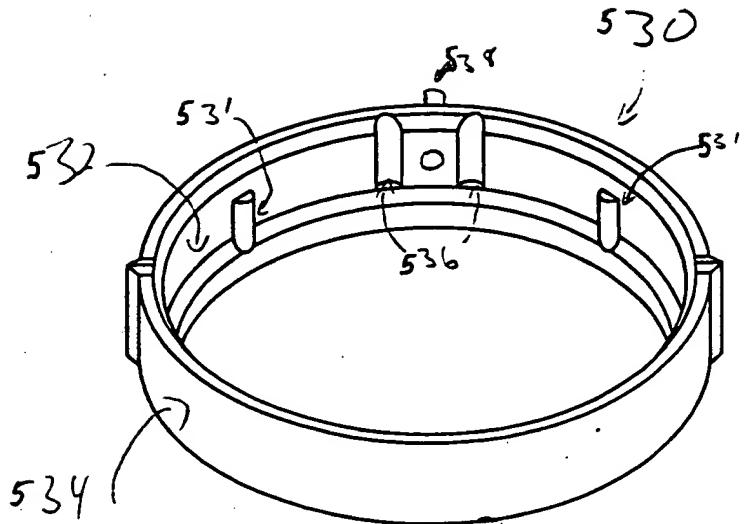


Fig. 35

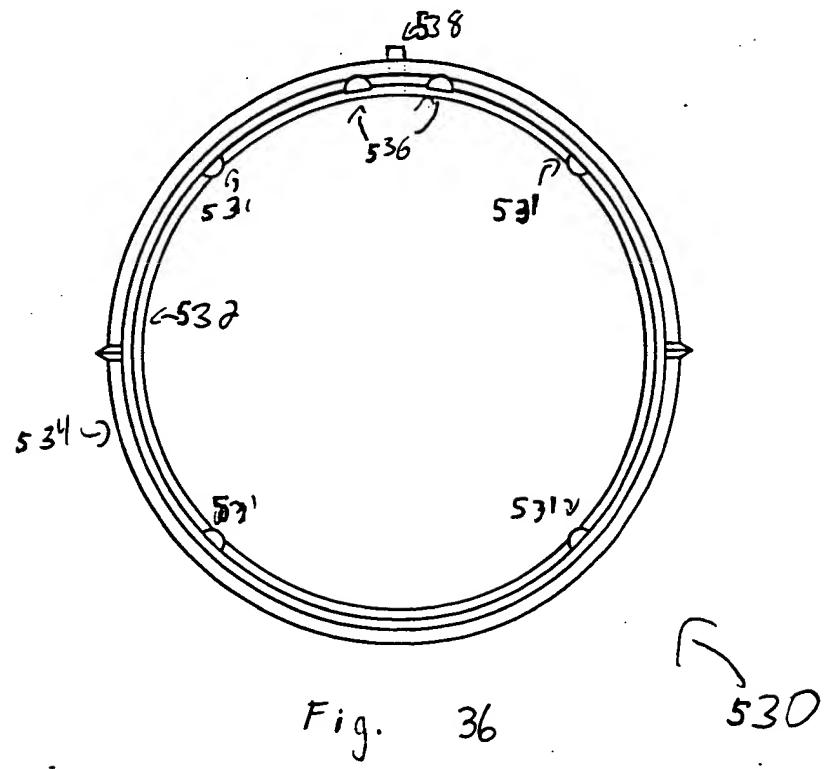


Fig. 36

λ^1 UV Light¹ λ^2

λ^3 UV Light² λ^4

λ^5 λ^6
Affector¹

λ^7 λ^8
Affector²

λ^9 λ^{10}
Affector³

Wavelength →

FIG. 37

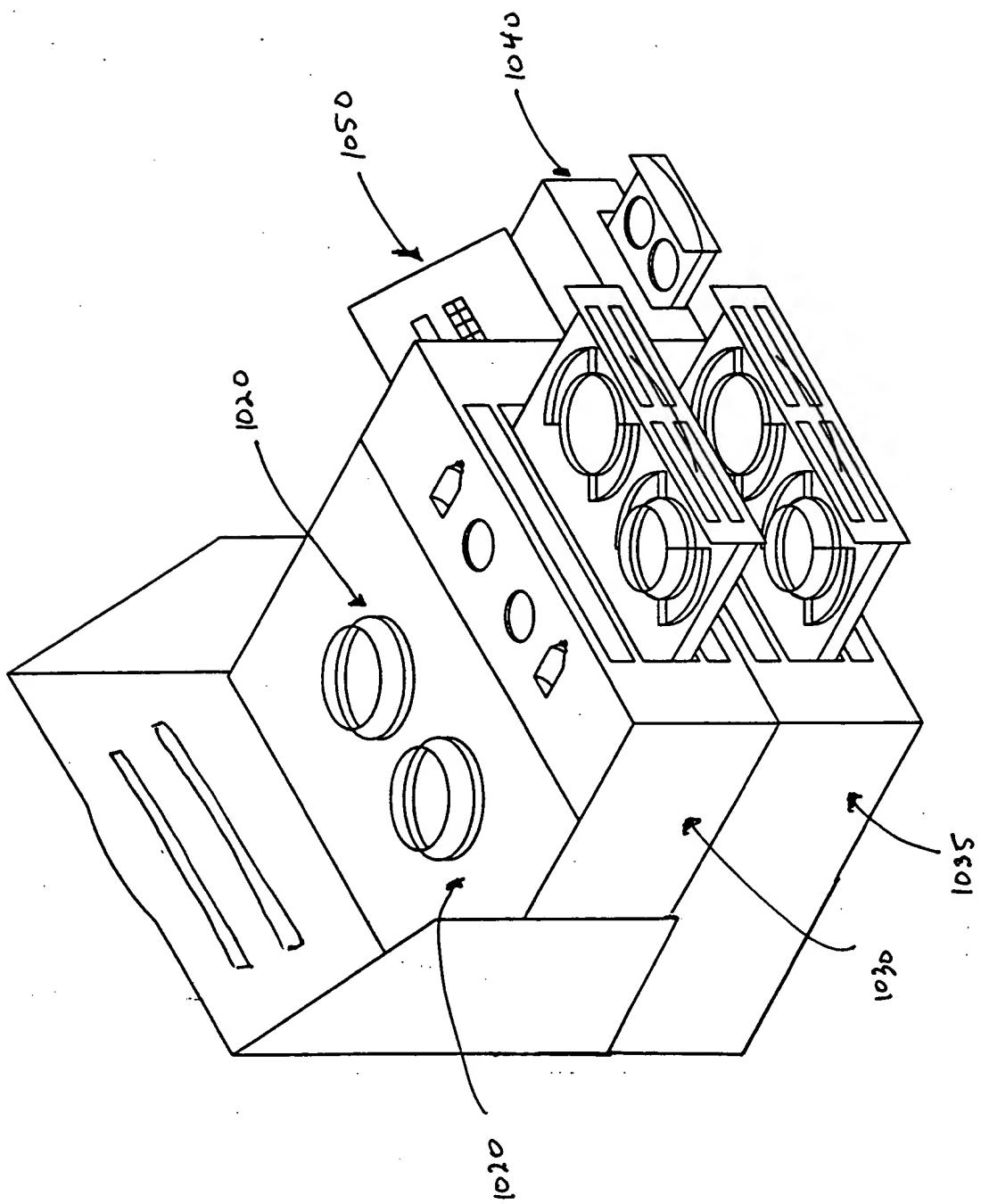


FIG. 38

